LEGACY ENGINEERING

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730 Main Street
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Millis, MA 02054

April 20, 2022

Millis Conservation Commission
900 Main Street
Town Offices
Millis, MA 02054

Ref: Notice of Intent
Proposed Single-Family Dwelling
1 Granite Drive

Dear Members of the Commission:

Please find enclosed four copies of a revised site plan, which was updated per the site walk to reflect the Commission's standard erosion control detail, the addition of four limit of work markers and notations about the buffer zone work. Do not hesitate to contact me if you have any questions or comments.

Sincerely,

LEGACY ENGINEERING LLC

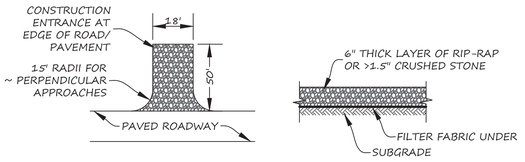
Digitally signed by Daniel J. Merrikin, P.E.
Date: 2022.04.20 15:35:18 -04'00'

Daniel J. Merrikin, P.E.
President

cc: File

GENERAL NOTES:

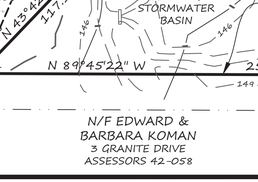
1. ANY ALTERATIONS MUST BE APPROVED IN WRITING BY THE DESIGN ENGINEER.
2. ANY CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFERING FROM THOSE SHOWN OR REPORTED HEREON SHALL BE REPORTED TO THE DESIGN ENGINEER BEFORE CONSTRUCTION CONTINUES.
3. BENCH MARK DATUM: NAVD 88.
4. TEST HOLE INFORMATION SHOWN HEREON IS LIMITED TO SOIL CONDITIONS FOUND AT THAT PARTICULAR LOCATION AND IS NOT CONSIDERED AN IMPLIED OR EXPRESS WARRANTY OF SOIL CONDITION BEYOND THE LIMITS OF SUCH TEST HOLES.
5. EXISTING UTILITY INFORMATION DEPICTED HEREON IS APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION. LEGACY ENGINEERING DOES NOT WARRANTY THAT ALL EXISTING UTILITIES ARE SHOWN. CONTRACTOR SHALL CONFIRM ALL UTILITY LOCATIONS.
6. CONTRACTOR SHALL CONTACT DIGSAFE PRIOR TO CONDUCTING ANY EXCAVATION ACTIVITIES.
7. NO SYSTEM TO BE BACKFILLED OR CONCEALED WITHOUT THE REQUIRED INSPECTION BY AND PERMISSION OF THE BOARD OF HEALTH AGENT.
8. AS-BUILT AND CONSTRUCTION CERTIFICATION TO BE PREPARED BY THE DESIGN ENGINEER.
9. CERTIFICATION OF CONSTRUCTION REQUIRED BY THE INSTALLER.
10. SYSTEM SHALL BE STAKED AND FLAGGED FROM THE DATE OF INSTALLATION UNTIL A CERTIFICATE OF COMPLIANCE IS ISSUED.
11. THE SITE IS NOT IN A NITROGEN SENSITIVE AREA.
12. THERE ARE NO PUBLIC WELLS WITHIN 400' OF THE SEPTIC SYSTEM.
13. THERE ARE NO PRIVATE WELLS WITHIN 200' OF THE SEPTIC SYSTEM.
14. THERE ARE NO BORDERING VEGETATED WETLANDS WITHIN 150' OF THE SOIL ABSORPTION SYSTEM.
15. THERE ARE NO INLAND BANKS OR SURFACE WATERS WITHIN 50' OF THE SOIL ABSORPTION SYSTEM.
16. THERE ARE NO VERNAL POOLS WITHIN 100' OF THE SOIL ABSORPTION SYSTEM.
17. THERE ARE NO WETLANDS BORDERING SURFACE WATER SUPPLIES OR TRIBUTARIES WITHIN 100' OF THE SEPTIC SYSTEM.
18. THERE ARE NO SURFACE WATER SUPPLIES WITHIN 400' OF THE SEPTIC SYSTEM.
19. THERE ARE REGULATORY FLOODWAYS ON THE PROPERTY.
20. THERE IS A 100-YEAR FLOOD LIMIT ON THE PROPERTY.
21. THERE ARE NO OPEN, SURFACE OR SUBSURFACE DRAINS WHICH INTERCEPT HIGH GROUNDWATER WITHIN 50' OF THE SOIL ABSORPTION SYSTEM.
22. THERE ARE NO OTHER OPEN, SURFACE, OR SUBSURFACE DRAINS.
23. THERE ARE NO FOUNDATION DRAINS AROUND THE BUILDING.
24. THERE ARE NO LEACHING CATCH BASINS OR DRY WELLS WITHIN 25' OF THE SOIL ABSORPTION SYSTEM.
25. THERE ARE NO INDUSTRIAL CATEGORY OR OTHER PROHIBITED WASTEWATERS DISCHARGING FROM THE FACILITY.
26. ALL SEPTIC SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE.
27. GRAVITY EFFLUENT DISTRIBUTION LINE OUTLET ORIFICES SHALL BE EVENLY SPACED AND LOCATED IN ACCORDANCE WITH 310 CMR 15.251(8). HOLE SIZES SHALL BE BETWEEN 3/8" AND 5/8".
28. ALL TOPSOIL, FILL, OR OTHER UNSUITABLE MATERIALS WITHIN 5' OF THE SOIL ABSORPTION SYSTEM, WHICH LIES BELOW THE TOP OF THE SOIL ABSORPTION SYSTEM, MUST BE REMOVED AND REPLACED WITH GRAVEL IN COMPLIANCE WITH 310 CMR 15.255(3): REQUIRED
29. FINISHED GRADE TO BE IN ACCORDANCE WITH THIS PLAN.
30. SOIL EVALUATOR: DANIEL J. MERRIKIN, P.E.
31. LIMITING SOIL HORIZON: C
32. GROUNDWATER DETERMINATION METHOD: REDOXIMORPHIC FEATURES
33. RESIDENTIAL SYSTEMS ARE NOT SIZED FOR GARBAGE GRINDERS.
34. PROPOSED TANKS ARE ABOVE SEASONAL-HIGH GROUNDWATER.
35. FOR PROPER PERFORMANCE, THE SEPTIC TANK SHOULD BE PUMPED ANNUALLY.



NOTES:
1. ENTRANCE SHALL BE INSTALLED BEFORE ANY EXCAVATION WORK OCCURS ON-SITE.
2. ENTRANCE SHALL BE MAINTAINED IN GOOD CONTITION UNTIL A PAVED DRIVEWAY IS INSTALLED. REPLACE ENTRANCE IF FILLED WITH SOILS OR IF SOILS ARE BEING TRACKED ONTO ADJACENT ROADWAYS.

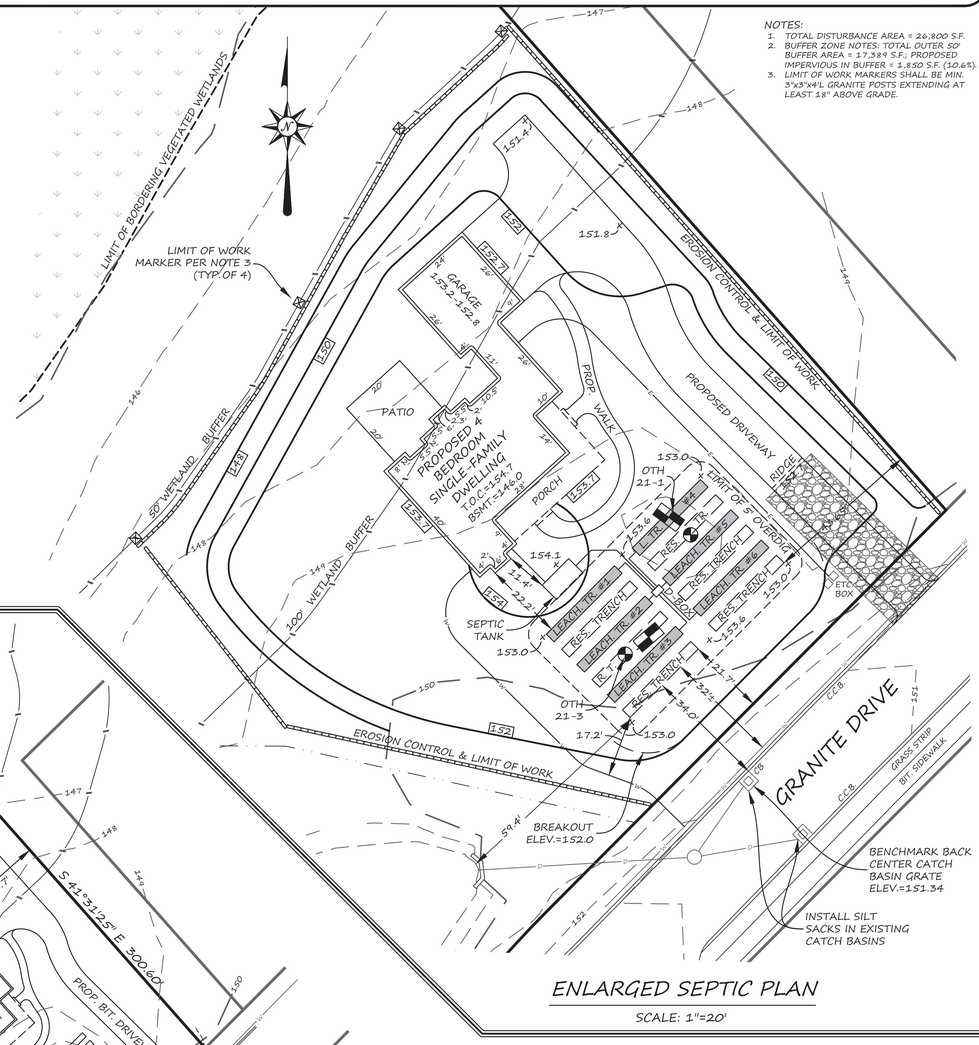
CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



CATCH BASIN SILT SACK DETAIL

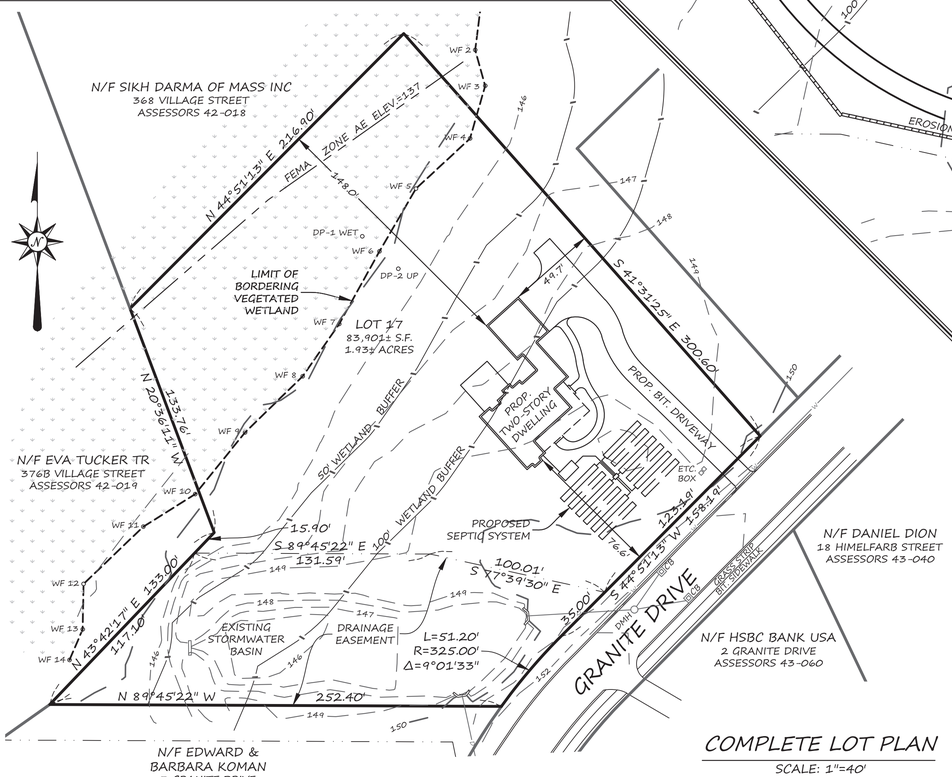
NOT TO SCALE



NOTES:
1. TOTAL DISTURBANCE AREA = 26,800 S.F.
2. BUFFER ZONE NOTES: TOTAL OUTER 50' BUFFER AREA = 17,389 S.F.; PROPOSED IMPERVIOUS IN BUFFER = 1,850 S.F. (10.6%).
3. LIMIT OF WORK MARKERS SHALL BE MIN. 3"x3"x4'L GRANITE POSTS EXTENDING AT LEAST 18" ABOVE GRADE.

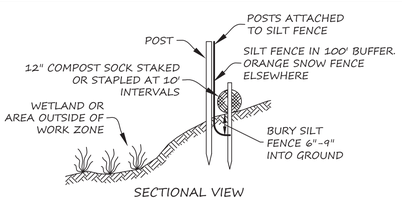
ENLARGED SEPTIC PLAN

SCALE: 1"=20'



COMPLETE LOT PLAN

SCALE: 1"=40'



NOTE: NON-BIODEGRADABLE SOCK SHELL FILLED WITH COMPOST MEDIA. JOINTS SHALL BE OVERLAPPED BY AT LEAST TWO FEET. ORANGE SNOW FENCE IS ONLY NEEDED IF THERE IS EVIDENCE OF THE COMPOST SOCK BEING BURIED BY CONSTRUCTION ACTIVITIES.

EROSION CONTROL DETAIL (COMPOST SOCK)

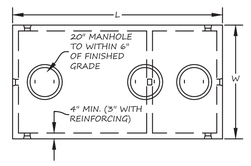
NOT TO SCALE

SYSTEM DESIGN

BEDROOMS: 4 DESIGN FLOW: 440 GPD SEPTIC TANK: 1,500 GAL. PERCOLATION RATE: 11 MPI GARB. GRINDER?: NO
PROPOSED SOIL ABSORPTION SYSTEM: SIX 27' LONG TRENCHES
DESIGN CAPACITY: [{(27' x (3 + 1 + 1)} x 6 TRENCHES x 0.56 GPD/S.F. = 453 GPD

SEPTIC TANK PLAN VIEW

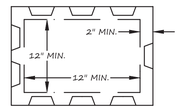
1. TANK TO HAVE OUTLET GAS BAFFLE.
2. PRECAST CONC. TANK SHALL MEET THE FOLLOWING PER 310 CMR 15:
   - 2.1. CONC. STRENGTH F'c=4,000 PSI @ 28 DAYS.
   - 2.2. CONC. DENSITY = 140 PCF.
   - 2.3. ADMIXTURES PER ASTM C233-95
   - 2.4. FOR WIRE FABRIC: GRADE ## R'd OR EQUIVALENT
   - 2.5. H-10 DESIGN LOADING
   - 2.6. TANK SHALL BE WATERTIGHT
   - 2.7. TANK SHALL BE EMBOSSED WITH A SEAL STATING THAT ASTM C1227-96 HAS BEEN MET.
3. DISTANCE BETWEEN INLET/OUTLET TEES SHALL BE GREATER THAN THE LIQUID DEPTH.



SEPTIC/PUMP TANK DIMENSION TABLE

TANK VOLUME	A	B	D	H(H-10)	H(H-20)	L	T	W
1,000 GALLON	N/A	N/A	4'-6"	5'-4"	5'-6"	8'-6"	N/A	4'-10"
1,500 GALLON	N/A	N/A	4'-4"	5'-8"	5'-10"	10'-6"	N/A	5'-8"
2,000 GALLON	1,330 GAL.	670 GAL.	4'-5"	5'-8"	5'-10"	12'-0"	1'9"	6'-6"

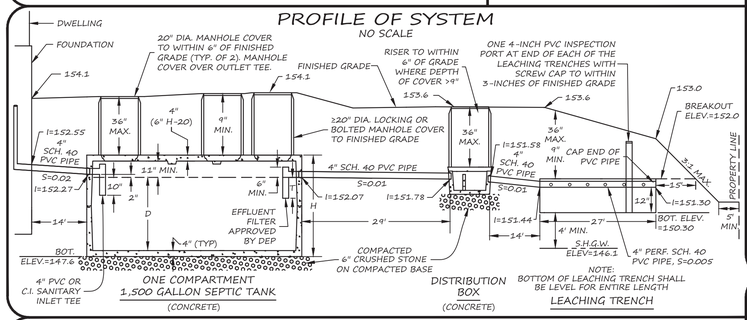
DIST. BOX PLAN VIEW



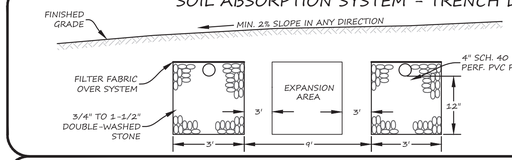
1. DISTRIBUTION BOX TO HAVE 6 OUTLETS
2. 0 OUTLETS TO BE PLUGGED
3. ALL DISTRIBUTION BOX OUTLET PIPES SHALL BE LEVEL FOR THE FIRST TWO FEET. ALL OUTLET PIPES SHALL HAVE THE SAME INVERT ELEVATION AT THE DISTRIBUTION BOX.
4. WHEN THE S.A.S. IS TO BE DOSED OR THE DIST. BOX INLET PIPE HAS A SLOPE GREATER THAN 8%, PROVIDE A CONCRETE INLET BAFFLE IN THE DIST. BOX. TO 1" ABOVE THE OUTLET INVERT.
5. MIN. SUMP BELOW OUTLET INVERT ELEV. = 6"
6. OUTLET INVERT ELEVATION SHALL BE AT LEAST 2-INCHES BELOW THE INLET INVERT ELEVATION.
7. COVER TO BE WATERTIGHT.

PROFILE OF SYSTEM

NO SCALE



SOIL ABSORPTION SYSTEM - TRENCH DETAIL



NOTES:
1. SOIL ABSORPTION SYSTEM TO HAVE A MINIMUM COVER OF 9" AND A MAXIMUM COVER OF 36".
2. BOTTOM AND SIDES OF TRENCHES TO BE SCARIFIED.

SOIL TEST RESULTS

OTH 21-1	OTH 21-3
2021/10/09	2021/10/09
BY: D. MERRIKIN	BY: D. MERRIKIN
INSP: J. MCVEIGH	INSP: J. MCVEIGH
GND. ELEV. 148.7	GND. ELEV. 149.3
Ap, LS MASSIVE/V.FRIABLE 10YR4/3 8"(148.0)	Ap, LS MASSIVE/V.FRIABLE 10YR4/3 7"(148.7)
Bw, LS/SL MASSIVE/V.FRIABLE 10YR6/8 24"(146.7)	Bw, LS MASSIVE/V.FRIABLE 10YR6/8 24"(147.3)
C, LS/SL MASSIVE/V.FRIABLE 2.5Y6/2 115"(139.1)	C, LS MASSIVE/V.FRIABLE 2.5Y6/4 116"(139.6)
REDOX@39"(145.5) WEEPING @ 90" STANDING @ 90"	REDOX@39"(146.1) WEEPING @ 98" STANDING @ 98"

NOTE: REPLACE Ap & Bw LAYERS AND REPLACE WITH SEPTIC SAND.

PERCOLATION RESULTS

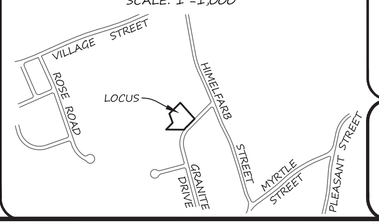
DATE: 2021/10/09			
	PT 21-1	PT 21-3	
DEPTH (IN.)	25/43"	24/42"	
TIME @ 12"	10:07	9:20	
TIME @ 11"	10:13	9:20	
TIME @ 10"	10:19	9:20	
TIME @ 9"	10:26	9:22	
TIME @ 8"	10:35	9:20	
TIME @ 7"	10:44	9:20	
TIME @ 6"	10:56	9:26	
TIME 9"-6"	30 MIN.	32 MIN.	
RATE (mpi)	10 mpi	11 mpi	
	GROUND ELEV. 148.8 BTM. TEST ELEV. 145.2	GROUND ELEV. 149.4 BTM. TEST ELEV. 145.4	

SCHEDULE OF ELEVATIONS

	SEPTIC TANK	TRENCHES
Top of Found. (T.C.)	154.7	
Basement Floor	146.0	
Invert of Pipe at Found.	152.55	
Invert at Tank Inlet		152.27
Invert at Tank Outlet		152.07
Invert at D. Box Inlet	151.78	
Invert at D. Box Outlet	151.58	
Invert at Trench Beginning		151.44
Invert at Trench End		151.30
Elevation of Trench Bottom (Level)		150.30
Finish Grade Over Leach Area (F.G.)		153.5 - 153.0

LOCUS

SCALE: 1"=1,000'



LEGEND & ABBREVIATIONS

- CB: CATCH BASIN
- DMH: DRAIN MANHOLE
- X" D DRAIN PIPE
- PVC: POLYVINYL CHLORIDE PIPE
- SMH: SEWER MANHOLE
- X" S SEWER PIPE
- oC.O.: SEWER CLEANOUT
- X" W WATER MAIN
- HYD: HYDRANT
- G.V.: WATER GATE VALVE
- C.S.: WATER SERVICE CURB STOP
- G GAS PIPELINE
- U.P.: UTILITY POLE
- 252 EXIST. CONTOUR
- 252 PROP. CONTOUR
- E.O.P. EDGE OF PAVEMENT
- C.C.B. CAPE COD BIT. BERM
- V.B.B. VERTICAL BIT. BERM
- S.G.C SLOPED GRANITE CURB
- V.G.C. VERT. GRANITE CURB

730 MAIN STREET
SUITE 2C
MILLIS, MA 02054
508-376-8883(o)

SHEET 1 OF 1

LEGACY ENGINEERING

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. MERRIKIN
CIVIL
No. 43309
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Daniel J. Merrikin, P.E.
Date: 2022.04.20 15:29:12 -04'00'

PLAN SCALE: AS NOTED

REVISION	DATE	BY
ADDED CONS. MARKERS, NOTES, ER. CONTROL	2022-04-20	D.J.M.

PLAN DATE: MARCH 29, 2022

GRANITE DRIVE
SEPTIC SYSTEM DESIGN
PLAN OF LAND IN MILLIS, MA